Complete Summary

GUIDELINE TITLE

Procedure guideline for 99m Tc-Exametazime (HMPAO)-labeled leukocyte scintigraphy for suspected infection/inflammation.

BIBLIOGRAPHIC SOURCE(S)

Society of Nuclear Medicine. Procedure guideline for 99mTc-exametazime (HMPAO)-labeled leukocyte scintigraphy for suspected infection/inflammation. Version 3.0. Reston (VA): Society of Nuclear Medicine; 2004 Jun 2. 6 p.

GUIDELINE STATUS

This is the current release of the guideline.

This guideline updates a previous version: Society of Nuclear Medicine. Procedure guideline for Tc-99m exametazime (HMPAO) labeled leukocyte scintigraphy for suspected infection/inflammation, 2.0. Reston (VA): Society of Nuclear Medicine; 1999 Feb. 22 p. (Society of Nuclear Medicine procedure guidelines; no. 2.0).

COMPLETE SUMMARY CONTENT

SCOPE

DISEASE/CONDITION(S)

- Acute inflammation/infection
- Inflammatory or ischemic bowel disease
- Septic arthritis
- Osteomyelitis

GUIDELINE CATEGORY

Diagnosis
Evaluation

CLINICAL SPECIALTY

Nuclear Medicine
Radiology

INTENDED USERS

Allied Health Personnel
Physicians

GUIDELINE OBJECTIVE(S)

To assist nuclear medicine practitioners in recommending, performing, interpreting, and reporting the results of ^{99m}Tc-exametazime (HMPAO)-labeled leukocyte (^{99m}Tc leukocyte) scintigraphy

TARGET POPULATION

Adults and children with suspected or documented inflammation/infection

INTERVENTIONS AND PRACTICES CONSIDERED

^{99m}Tc-exametazime (HMPAO) labeled leukocyte scintigraphy

MAJOR OUTCOMES CONSIDERED

Sensitivity of ^{99m}Tc-labeled leukocyte scintigraphy in detecting disease

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Hand-searches of Published Literature (Primary Sources)
Hand-searches of Published Literature (Secondary Sources)
Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

Literature searches were performed. In addition, references known to experts and references from the nuclear medicine community were considered.

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Not stated

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Not applicable

METHODS USED TO ANALYZE THE EVIDENCE

Review

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not stated

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

Drafts of the guideline were submitted to members of the Guideline Development subcommittee (methodologists) and the Task Force (subject experts). These reviewers indicated on a line-by-line basis any suggestions or recommendations for the revision of the guideline. The percentage of agreement for all reviewers was calculated for each revision and compiled by the Society of Nuclear Medicine (SNM) central office. It is expected that the percentage of agreement will increase with each revision.

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Not applicable

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

Internal Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

When the Task Force and Guideline Development Subcommittee completed their edits, draft procedure guidelines were distributed to the Society of Nuclear Medicine (SNM) Sample Review Group for comment. (The SNM Sample Review

Group is a cross-section of approximately 100 nuclear medicine practitioners representing every field of specialization).

The guideline was approved by the SNM Commission on Health Care Policy, the Board of Directors, and the House of Delegates.

The update was approved June 2, 2004.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

Background Information and Definitions

^{99m}Tc-leukocyte scintigraphy consists of regional, whole-body, planar, and single photon emission computed tomography (SPECT) scintigrams obtained after intravenous injection of ^{99m}Tc-labeled leukocytes.

Examples of Clinical or Research Applications for ^{99m} Tc-Leukocyte Scintigraphy

A. To detect suspected sites of acute inflammation/infection in the febrile patient with or without localizing signs or symptoms
    1. To detect site(s) of inflammation as cause of abdominal pain
    2. To localize site(s) of infection in patients with granulocytosis and/or positive blood cultures
B. To detect and determine the extent of inflammatory or ischemic bowel disease. This technique may be more sensitive than ^{111}Indium (^{111}In)-leukocyte scintigraphy for detection of disease, particularly involving the small bowel. ^{111}In-leukocytes are preferred for quantitative assessment.
C. To detect and follow-up musculoskeletal infection, such as septic arthritis and osteomyelitis

    1. May be more sensitive for detection of acute compared to chronic osteomyelitis
    2. Combined ^{111}In-white blood cell (WBC)/^{99m}Tc-diphosphonate bone and/or ^{111}In-WBC/^{99m}Tc-sulfur colloid marrow scans are preferred in difficult cases of osteomyelitis at sites with existing bone alteration and/or adjacent soft tissue infection.

Procedure

The detailed procedure recommendations in the guideline address the following areas: patient preparation; information pertinent to performing the procedure (i.e., important data that the physician should have about the patient at the time the exam is performed and interpreted); precautions; information regarding the radiopharmaceutical (i.e., ranges of administered activity, organ receiving the largest radiation dose, effective dose), image acquisition; interventions; processing; interpretation/reporting; quality control, and sources of error.

CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of evidence supporting the recommendations is not specifically stated.

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

The intent of the procedure guideline is to describe ^{99m}Tc-exametazime (HMPAO) labeled leukocyte scintigraphy for suspected infection/inflammation, in order to maximize the diagnostic information obtained in the study while minimizing the resources that are expended.

POTENTIAL HARMS

The removal of blood for radiolabeling and reinjection poses the risk of misadministration to the wrong patient. Procedures and quality assurance measures for correct identification of patients and handling blood products are essential.

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

- The Society of Nuclear Medicine (SNM) has written and approved these guidelines as an educational tool designed to promote the cost-effective use of high quality nuclear medicine procedures or in the conduct of research and to assist practitioners in providing appropriate care for patients. The guidelines should not be deemed inclusive of all proper procedures or exclusive of other procedures reasonably directed to obtaining the same results. They are neither inflexible rules nor requirements of practice and are not intended nor should they be used to establish a legal standard of care. For these reasons, SNM cautions against the use of these guidelines in litigation in which the clinical decisions of a practitioner are called into question.
- The ultimate judgment about the propriety of any specific procedure or course of action must be made by the physician when considering the circumstances presented. Thus, an approach that differs from the guidelines is not necessarily below the standard of care. A Conscientious practitioner may responsibly adopt a course of action different from that set forth in the guidelines when, in his or her reasonable judgment, such course of action is indicated by the condition of the patient, limitations on available resources, or advances in knowledge or technology subsequent to publication of the guidelines.
- All that should be expected is that the practitioner will follow a reasonable course of action based on current knowledge, available resources, and the needs of the patient to deliver effective and safe medical care. The sole

purpose of these guidelines is to assist practitioners in achieving this objective.
- Advances in medicine occur at a rapid rate. The date of a guideline should always be considered in determining its current applicability.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Getting Better
Living with Illness

IOM DOMAIN

Effectiveness
Safety

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

Society of Nuclear Medicine. Procedure guideline for 99mTc-exametazime (HMPAO)-labeled leukocyte scintigraphy for suspected infection/inflammation. Version 3.0. Reston (VA): Society of Nuclear Medicine; 2004 Jun 2. 6 p.

ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

1999 Feb (revised 2004 Jun 2)

GUIDELINE DEVELOPER(S)

Society of Nuclear Medicine, Inc - Medical Specialty Society

SOURCE(S) OF FUNDING

Society of Nuclear Medicine (SNM)

GUIDELINE COMMITTEE

Task Force

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

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FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

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GUIDELINE AVAILABILITY

Electronic copies: Available from the Society of Nuclear Medicine (SNM) Web site.

Print copies: Available from SNM, Division of Health Care Policy, 1850 Samuel Morse Dr, Reston, VA 20190-5316; Phone: 1-800-513-6853 or 1-703-326-1186; Fax: 703-708-9015; E-Mail: ServiceCenter@snm.org.

AVAILABILITY OF COMPANION DOCUMENTS

The following are available:

- Society of Nuclear Medicine. Procedure guideline for guideline development. Reston (VA): Society of Nuclear Medicine; 2001 Jun (version 3.0). Electronic copies: Available from the Society of Nuclear Medicine Web site.
- Society of Nuclear Medicine. Performance and responsibility guidelines for NMT. Reston (VA): Society of Nuclear Medicine; 2003. Electronic copies: Available from the Society of Nuclear Medicine Web site.

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PATIENT RESOURCES

None available

NGC STATUS

This summary was completed by ECRI on July 20, 1999. It was verified by the guideline developer as of August 5, 1999. This NGC summary was updated by ECRI on May 18, 2005. The updated information was verified by the guideline developer on June 30, 2005.

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